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Psyche at Risk; Psyche as Armor, in Biodefense.**

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"Planning for Bioterrorism. Behavioral and Mental Health
Responses to weapons of mass destruction and mass disruption."

This monograph is primarily devoted to consequence management, an indispensable arm of our response to the threats of biological warfare (BW). It is very important that the expertise of professionals like our editors and contributors be brought to bear on the psychosocial aspects of these problems. These must go hand-in-hand with all of the technical, medical, clinical support, vaccines, antibiotics, first responders, and physical aspects of that management. It is lamentable that the first draft of the National Strategic Plan for the prospective Department of Homeland Security [ref] -- supposed to be an all-embracing structure -- gives perfunctory attention to such issues; "mental health" is not so much as mentioned as such. We all have to weigh in.

For my own part, I have long been deeply involved in pleading for a stronger posture in medical consequence management, and am gratified at the growing mobilization and coordination of those efforts. Alas, as I look ahead 10 or 20 years about our ever-expanding knowledge of pathogenic organisms of infectious disease, I am left with a rather gloomy prospect of the balance between offensive and defensive capability. That has led me to elicit more attention to providing disincentives for individuals, states, small groups, the whole panoply, to contemplate, plan for, and implement the use of BW in the first place. In the long run, our best technical measures will still be mitigations, not solutions. We need to invest much more effort towards ensuring these events just don't happen, in what might aptly be called primary prevention. There are no panaceas here, but little thought has yet been given towards the most elementary measures that could have some benefit.

Consequence management is an important link in that chain. Without preparedness we are so vulnerable that it constitutes a criminal temptation for anybody to concoct great mischief. But even using optimistic projections of what good consequence management could accomplish in today's world with today's agents, you would be very pleased at the possibility of rescuing 90% of your potential victims, and it is categorically important that we make those efforts. But when your potential victims number in large exponents of 10, the 10% residual is still frightful.

We used to seek some comfort in the historical datum that there had been no significant BW attack in recent history. Some had then argued that we need not make any fuss at all about the problem. That illusion was shattered by the anthrax attacks following on the heels of 9/11, though some still cavil that the scale was miniscule compared, say, to the felling of the WTC. Its limited scale notwithstanding, the episode proved what havoc could be inflicted

by fear: a thousandfold disparity between those who deserve and demand treatment and the final victims; erosion of social capital. It also left little doubt that BW agents were accessible to individuals and terrorist groups with no discernable launching from a sovereign state.

This episode aside, the predominant history of non-use of BW invites attention to the immense disparity between the capability for mischief of a relatively accessible weapon and its actual exercise. So when capabilities are ubiquitous, it is intentions that will matter, and we seek some leverage on those intentions. We are of course dealing with a broad spectrum of threators, from elusive individuals to nation states who have vastly greater capabilities, but are the more likely to be deterrable. A useful analogy is the access enjoyed by many individuals to lethal "warheads", like tanker trucks full of gasoline, that could wreak havoc if the threator were really determined to flame out a large part of a city or a subway system. That such events remain relatively rare speaks to cultural and social constraints we should learn to reinforce. Our fire departments aid in consequence management, and arson inspectors in investigation, retribution, and deterrence. Much more must be tacit in our shared culture.

Why not more catastrophes? Part of the answer is that mayhem and destruction are just parts of the spectrum of what any threators, states or even terrorist groups want to accomplish. They almost always have some rational political purposes in mind and those purposes have more to do with coercion, some degree of retribution, some degree of warning, a large degree of fear, that could often be accomplished at moderated levels of destructiveness. The threators' local political context often has more to do with their behavior than we can readily ascertain.

But the world is changing, from the downing of the PanAm 103 at Lockerbie on 12/11/88, to 9/11/01 we have seen an escalation of mayhem, which gives little comfort to the idea that no one would seek the obliteration of a city.

Figure 1. Organizational Framework
Primary Prevention of Biological Warfare ** see foot.

This figure largely speaks for itself, but I add some commentary on particular items. It is primarily directed at the behavior of states, whose material and technical power empowers them for the grandest scale of mischief. Individual terrorists are far more disparate, far less predictable and harder to reach with any sanctions; but the scales on the threator axis are not altogether disconnected.

Most important is the issue of outlawry in the deepest sense of the term, even of the thought of the use of biological weapons, putting this so far outside the pale, that it is not contemplated as something that any human being will do. We know individuals who are so unsocialized or so anti-socialized that perhaps this is even more of an incentive than it is a deterrent, but the vast majority of people do operate with some framework of a sense of social order. They may not like the one that they are in. They may want to change it, but very few really want to see it collapse all together.

Among nations, we have come a long way with respect to delegitimizing the use of biological weapons, particularly embodied in the Biological Weapons Convention. We still have to organize our collective resolve in international forums to achieve effective enforcement. Witness the problems we have had at the U.N. Security Council in really getting the French and the Russians and the Chinese to go along with us in developing an effective regime of sanctions for Iraq, and frustrating its very clear intentions of development of biological weaponry.

But that is also connected with the fact that we are so strong we sometimes forget that we have to be smart. Our coercive instruments, or worse our planning logic for their deployment, are often very blunt. Even economic sanctions, when they affect the economic welfare of an entire people, have had a backlash -- in the international forum and in the domestic policy. One of our burdens, if we are going to have a reasonable world order, is to find ways of enforcing that order that do not penalize entire peoples, already in misery.

Some 20 years ago, this nation did something quite disgraceful and equally against our own national security interest. It looked the other way at Iraq's use of chemical weaponry in Iran and against its own Kurds because at the moment we were leaning towards the ruling regime. It need not have required very distant vision to understand how, in any long run, that would be very much to our disadvantage and it certainly has proven to be in spades. The U.S., as the most powerful nation, the one most deeply involved, the one who has the most to lose from the disorder that would accompany the habitual use of weapons like biological weapons, we, ourselves, must come to the table with clean hands.

"Clean Hands" is also an excellent metaphor for a very positive step, to reinforce the sense that global health is a shared program, is a shared objective, that we will work with other countries and expend our own resources in order to enhance everyone's security against infectious disease no matter where they are. It is a disgrace that we have medications that are unaffordable to tens of millions of Africans who could profit from them. I am not lambasting the pharmaceutical companies. They are operating in a mode that we have instructed them to, to make high-risk investments, achieve wonderful progress at the technical level. But we cannot let it stop there, at an impasse where a few billions of dollars could make such an enormous difference to the welfare of an entire continent. To the extent that we turn our backs on that kind of a situation, we have been a little bit hypocritical in saying that biological weaponry is so awful because you are recruiting an infectious disease to an inhumane purpose, when we are not going all out in our own potentiality of countering infectious disease on a global basis. It is gratifying that in the last few months this administration has taken firm positive steps to be global partners in the war against AIDS, TB, and malaria.

Consider how much publicity should be given to the entire issue of the BW threat. I am more concerned about inspiration than about information. Anyone who already has the idea that they want to produce biological weapons will have little difficulty, I am sad to say, in getting every nuance of information that they need. They would be capitalizing on the indirect fruits of our multi-billion dollar investments in offensive BW between World War II and 1968 when we were in an arms race with the Soviet Union in the development of this kind of weaponry. They were not dramatic technological breakthroughs. They were not

constructing new organisms, but they were discovering that the BW agents can be aerosolized very effectively to disseminate what might be otherwise very limited diseases, like anthrax; define the parameters for them; define the conditions for stabilization of those materials, their shelf life and so forth. All of that is available in the unclassified literature.

Now you have to know how to look for it if you want to make the most effect, and then you have to know what part of it to believe. Some modicum of restraint in media rhetoric in painting apocalyptic tales is probably in the public interest, especially now that the policy establishment really does agree, we have a problem in coping with the BW threat.

Is it possible to even contemplate regulating BW-relevant technology in the future when everything we do in the name of medical research, in the name of understanding pathogenesis, in the name of targeting new kinds of antibiotics and developing new kinds of vaccines overnight, can could be converted to quite nefarious use? There is no easy answer to that question, one more reason to try to deal with the BW problem as close to the roots as possible, because what looms in the future is even more frightful than what we have on the table today. One serious difficulty with efforts to tightly regulate research and handling of "BW-agents" in the U.S., is that will drive the best academic minds away from that area; and we are then the more likely to be totally blind-sided by technical advances abroad, beyond the reach of our well-intentioned but clumsy restrictions, e.g. on the place that non-US nationals can have in our research labs.

And then a very practical kind of issue, how can we sustain effective intelligence, the penetration of terrorist groups and their sympathizers, get into their heads, get into their planning? But, how can we proceed along these lines without an unacceptable intrusion into the ordinary course of our lives, the protection of our privacy, and so on. These serious dilemmas have to be thought about, they obviously also have their psychosocial component.

Cultural restraints are a historical reality even if they are perplexing to understand. This is language from the treaties: The 1925 Geneva Protocol, "Whereas the use in war of asphyxiating, poisonous or other gases, and of all analogous, liquids, materials or devices has been justly condemned by the general opinion of the civilized world, we agree also to extend this prohibition to the use of bacteriological methods of warfare."

More recently, in 1975, the Biological Weapons Convention, (BWC) this is the exhortatory language. "Determined for the sake of all mankind to exclude completely the possibility of bacteriological agents and toxins being used as weapons, convinced that such use would be repugnant to the conscience of mankind and no effort should be spared to minimize this risk." Well, you can believe it or not, but the language is there. It has been imported into international law. I think it has reached the status of customary law even beyond the signatories. Officials even of a nonsignatory state would be likely to be hauled before a new Nuremberg court as having committed a war crime if they were to use biological weapons in the face of this kind of language. But, I will just put it down as a cultural display. At least the idea of this kind of abhorrence, of this kind of prohibition, has been well established in the rhetoric. As testimony, consider a quotation, from Vannevar Bush, a book he wrote shortly after WW-2. "Without a shadow of a doubt, there is something in man's makeup that causes him to hesitate, when at the point of bringing war to

his enemy by poisoning him or his cattle and crops or spreading disease, even Hitler drew back from this. Whether it is because of some old taboo ingrained in the fiber of the race, the human race shrinks and draws back when the subject is broached. It always has, and it probably always will." I do not quote that because I take it at face value. I do not know what is ingrained in our fiber. I do know the history that we have talked about.

Nevertheless, here is something to grasp on to here. We can indeed examine, what it is we can do to reinforce these attitudes, these folkways, these mores, and not encourage their violation? I am trying to inquire what directions we can take. I think our most important media are probably physicians, health providers. Some of these are going to have the most obvious technical skills for the development of these kinds of weapons and their adoption. But they are also part of a world-wide community of discourse of information, of some commonly held ideals of service to humanity.

They played a large role in calling President Nixon's attention to the issues entailed in chemical and biological weaponry. Now this country is not quite like some of the others, but there could be communities of this sort, in France, in Germany, perhaps even in Russia, that have not been cultivated in any way, that we, as physicians, ought to be in closer contact with to try to make common cause. We have Ken Alibek who defected from the USSR by his own account because of his repugnance about what he was up to as a former biological warrior. "How could behavior of his kind be further reinforced?"

We have taken some small way. We have cooperative threat reduction programs. We are investing a few million dollars here and there in the FSU, when we would have paid billions to neutralize these threats during the Cold War, for converting old BW facilities into ones that could be oriented towards research and development for vaccine production. Yes, this is trying to buy out some of the old BW warriors on that side: Why not? It has taken years to get a tiny trickle of funds, but something is happening in that direction. So, these sentimental attitudes can be reinforced by other kinds of action.

The BWC itself is a diplomatic victory insufficiently appreciated by many of our political leaders. As a superpower, we have very little need of biological weapons; for poorer countries, they could be regarded as a step towards levelling the playing field, and we are fortunate for the global rhetorical consensus that they should be outlawed. The BWC is not readily enforced, as we see from our travails with Saddam Hussein; but it provides a moral, public relations, and legal foundation for the steps we may need to invoke for enforcement. We have then to undo the U.S.' implied disdain for the BWC occasioned by the dispute over adoption of protocols for enhanced verification procedures.

Figure 1.

Outlawry: putting BW beyond the pale. In principle, this is widely adhered to; we still have to organize our resolve in international forums to achieve effective enforcement. Medical professionals can play a role.

Discouraging proliferation: can sanctions and export controls be made more effective? -- less "toxic" side effects on civilian populations?

Role of threats of retribution. How credible? How explicit? Can we develop sharper, more nuanced tools for striking at capabilities and power-structures of threatening regimes?

More robust collective security to reassure some smaller countries it is safe for them not to develop BW.

Come to the table with clean hands! Avoid ambiguities like the prospective mycoherbicide project. It is not a good idea to be spraying *Fusarium* spores over Colombia's coca plantations, when we are appropriately jittery about attacks on our domestic agriculture.

Make global health, a shared war *against* disease, a common cause.

Temper publicity given to the entire issue? Inspiration vs. readily available information

Can worrisome new technology be regulated, in an area so closely connected with life-saving medical research? Dissemination of knowledge, of reagents?

Can we enhance preemptive intelligence about terrorist planning without subverting civil liberties?

References National Strategy for Homeland Security, July 2002.

I suggest you devote a page or two for the entire volume on relevant web sites. Here's my list:

WEB SITES re BIOTERRORISM

bt.cdc.gov/ usamriid.army.mil/education/bluebook.html hopkins-biodefense.org/
 nyc.gov/html/doh/ search bioterrorism http://pubs.ama-assn.org/bioterr.html
 http://www.niaid.nih.gov/publications/bioterrorism.htm promedmail.org biohazardnews.net
 asmusa.org/pcsrc/bioprep.htm wfubmc.edu/intmed/id/links_biot.html
 http://www.vnh.org/MedAspChemBioWar/ for Textbook of Mil Med
 http://www.nlm.nih.gov/medlineplus/ search bioterrorism, anthrax, etc
 http://www.nap.edu/books/0309082536/html/ IOM-Forum, Biological Threats and
 Terrorism.

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I'm sure you could augment.